

## MATH2111 Class Exercise 1

Family Name	Other Names	Student No.

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**CALCULATORS MUST NOT BE USED**

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1. If  $A = \{a, b, c, d, m, n\}$ ,  $B = \{b, d, m, n, x, y\}$  and  $C = \{a, d, n, x, y, z\}$  then write down each of the following sets as a list of elements separated by commas and enclosed by braces where appropriate.

(a)  $A \cap B$

(b)  $B \cap C$

(c)  $A \cap C$

(d)  $A \cap B \cap C$

(e)  $A \cup B$

(f)  $B \cup C$

(g)  $A \cup C$

(h)  $A \cup B \cup C$

(i)  $(A \cup C) \setminus B$

(j)  $(A \cup B) \setminus (A \cap C)$

2. Which elements of the set  $\{-3/2, \pi, 0, \sqrt{2}, -1, \sqrt{-3}, 5/2, 3\}$  also belong to:

(a)  $\mathbb{R}$

(b)  $\mathbb{Q}$

(c)  $\mathbb{Z}$

(d)  $\mathbb{N}$

(e)  $\mathbb{R} \setminus \mathbb{Q}$

(f)  $\mathbb{R} \setminus \mathbb{Z}$

(g)  $\mathbb{R} \setminus \mathbb{N}$

(h)  $\mathbb{Q} \setminus \mathbb{Z}$

(i)  $\mathbb{Q} \setminus \mathbb{N}$

(j)  $\mathbb{Z} \setminus \mathbb{N}$